Medical

CONTENTS

No. 1, September 20, 1954

PAGE

Yocum, C. S., and Blinks, L. R. Photosynthetic efficiency of marine plants 1

Vis, V. A. The mercury–hydrogen peroxide system as an analogue of nervous transmission 17

Krahl, M. E., Keltch, A. K., Walters, C. P., and Clowes, G. H. A. Hexokinase activity from eggs of the sea urchin *Arbacia punctulata* .. 31

Stern, Herbert, and Timonen, S. The position of the cell nucleus in pathways of hydrogen transfer: cytochrome C, flavoproteins, glutathione, and ascorbic acid 41

Bozler, Emil. Interactions between magnesium, pyrophosphate, and the contractile elements 53

Sussman, Alfred S. Changes in the permeability of ascospores of *Neurospora tetrasperma* during germination 59

Barsa, Mary C. The behavior of isolated hearts of the grasshopper, *Chortophaga viridifasciata*, and the moth, *Samia walkeri*, in solutions with different concentrations of sodium, potassium, calcium, and magnesium 79

McDonald, Margaret R. The inactivation of dilute solutions of crystalline trypsin by x-radiation. I. Kinetics and characteristics 93

Northrop, John H. Apparatus for maintaining bacterial cultures in the steady state 105

Hunt, Carlton C. Relation of function to diameter in afferent fibers of muscle nerves 117

No. 2, November 20, 1954

Beidler, Lloyd M. A theory of taste stimulation 133

Doyle, W. L. Distribution of esterase in gastric mucosa 141

Hershey, A. D. Conservation of nucleic acids during bacterial growth ... 145

Bozler, Emil. Relaxation in extracted muscle fibers 149

Smith, Lucile Schultz, and Krueger, Albert Paul. Characteristics of a new vibrio-bacteriophage system. Plates 1 to 3 161

Bovarnick, Marianna R., and Allen, Emma G. Reversible inactivation of typhus rickettsiae. I. Inactivation by freezing 169

Lin, Shih-Chia C., and Greenberg, David M. Enzymatic breakdown of threonine by threonine aldolase 181

PAGE

KAPLAN, J. GORDIN. The alteration of intracellular enzymes. II. The relation between the surface and the biological activities of altering agents 197

WASSERMAN, AARON E., LESSNER, JAMES M., and WEST, MARGARET K. Reversal of the streptomycin injury of *Escherichia coli* 213

RENKIN, EUGENE M. Filtration, diffusion, and molecular sieving through porous cellulose membranes 225

GRUNDFEST, HARRY, KAO, C. Y., and ALTAMIRANO, MARIO. Bioelectric effects of ions microinjected into the giant axon of *Loligo* 245

No. 3, JANUARY 20, 1955

GREEN, H., and ANKER, H. S. Kinetics of amino acid incorporation into serum proteins 283

BRANDT, C. L., SHEPARD, D. C., and GIESE, A. C. The effect of nutritional state on photoreversal of ultraviolet injuries in *Didinium nasutum* 295

LLOYD, DAVID P. C., HUNT, CARLTON C., and MCINTYRE, A. K. Transmission in fractionated monosynaptic spinal reflex systems 307

ALTAMIRANO, MARIO, COATES, CHRISTOPHER W., and GRUNDFEST, HARRY. Mechanisms of direct and neural excitability in electroplaques of electric eel 319

KALMAN, SUMNER M., and USSING, HANS H. Active sodium uptake by the toad and its response to the antidiuretic hormone 361

SOLOMON, A. K., and GOLD, G. LENNARD. Potassium transport in human erythrocytes: evidence for a three compartment system 371

GOLD, G. LENNARD, and SOLOMON, A. K. The transport of sodium into human erythrocytes *in vivo* 389

DALY, M. M., and MIRSKY, A. E. Histones with high lysine content ... 405

ALLFREY, V. G., DALY, M. M., and MIRSKY, A. E. Some observations on protein metabolism in chromosomes of non-dividing cells 415

No. 4, MARCH 20, 1955

FOULKES, E. C. Studies in cell permeability. The uptake of pyruvate by yeast 425

KRAHL, M. E., KELTCH, A. K., WALTERS, C. P., and CLOWES, G. H. A. Glucose-6-phosphate and 6-phosphogluconate dehydrogenases from eggs of the sea urchin, *Arbacia punctulata* 431

STENT, GUNTHER S., and FUERST, CLARENCE R. Inactivation of bacteriophages by decay of incorporated radioactive phosphorus 441

COMMONER, BARRY, and YAMADA, MAS. The non-virus proteins associated with tobacco mosaic virus 459

Medical

PAGE

COMMONER, BARRY, and RODENBERG, SIDNEY D. Relationships between tobacco mosaic virus and the non-virus proteins 475

BAIR, WILLIAM J., and STANNARD, J. N. Role of electrolytes and starvation in altering apparent radiosensitivity of bakers' yeast 493

BAIR, WILLIAM J., and STANNARD, J. N. Effect of starving and dowex 50 treatment on growth of normal and x-irradiated yeast 505

FRASER, M. J., and KAPLAN, J. GORDIN. The alteration of intracellular enzymes. III. The effect of temperature on the kinetics of altered and unaltered yeast catalase 515

HALVORSON, HARLYN, FRY, WILLIAM, and SCHWEMMIN, DONALD. A study of the properties of the free amino acid pool and enzyme synthesis in yeast 549

No. 5, MAY 20, 1955

PONDER, ERIC. The specific heat and the heat of compression of human red cells, sickled red cells, and paracrystalline rat red cells 575

MCDONALD, MARGARET R. The inactivation of dilute solutions of crystalline trypsin by x-radiation. II. Effects of enzyme concentration, medium, pH, and temperature 581

DEYRUP, INGRITH J., and USSING, HANS H. Accumulation of sulfate labelled with S^{35} by rat tissue *in vitro* 599

NEIHOF, REX, and SOLLNER, KARL. A quantitative electrochemical theory of the electrolyte permeability of mosaic membranes composed of selectively anion-permeable and selectively cation-permeable parts, and its experimental verification. II. A quantitative test of the theory in model systems which do not involve the use of auxiliary electrodes 613

WALD, GEORGE, BROWN, PAUL K., and SMITH, PATRICIA H. Iodopsin 623

BAER, B., SHRAGER, S., and KRUEGER, ALBERT PAUL. The effect of iodoacetate and other inhibitors on phage production and lysis in three phage systems 683

SMALL, MELVIN D., BREAN, JOHN W., and FARRAR, JOHN T. An application of autocorrelation methods to the interpretation of intestinal motility records 695

GASSER, HERBERT S. Properties of dorsal root unmedullated fibers on the two sides of the ganglion 709

No. 6, JULY 20, 1955

LUDWIG, DANIEL, and BARSA, MARY C. Relationship between the activity of the succinoxidase system and the rate of oxygen consumption during the embryonic development of the mealworm, *Tenebrio molitor* Linnaeus 729

PAGE

BOZLER, EMIL. Binding of calcium and magnesium by the contractile elements 735

MILSTONE, J. H. Chromatography of blood-clotting factors and serum proteins on columns of diatomaceous earth 743

MILSTONE, J. H. Effect of blood thrombokinase, as influenced by soy bean trypsin inhibitor, ultracentrifugation, and accessory factors 757

LLOYD, DAVID P. C., and MCINTYRE, A. K. Monosynaptic reflex responses of individual motoneurons 771

LLOYD, DAVID P. C., and MCINTYRE, A. K. Transmitter potentiality of homonymous and heteronymous monosynaptic reflex connections of individual motoneurons 789

HUNT, CARLTON C. Temporal fluctuation in excitability of spinal motoneurons and its influence on monosynaptic response 801

HUNT, CARLTON C. Monosynaptic reflex response of spinal motoneurons to graded afferent stimulation 813

STENT, GUNTHER S. Decay of incorporated radioactive phosphorus during reproduction of bacteriophage T2 853

HUF, ERNST G., WILLS, JOYCE P., and ARRIGHI, MARY F. Electrolyte distribution and active salt uptake in frog skin 867

INDEX TO VOLUME 38 889